

Memorandum

RECEIVED
DIVISION OF OIL & GAS
SACRAMENTO

MAR 8 2 07 PM '82

To : Bob Reid
Sacramento

Date : March 4, 1982

Subject: UIC Aquifer
Exemptions

From : Department of Conservation—
Division of Oil and Gas

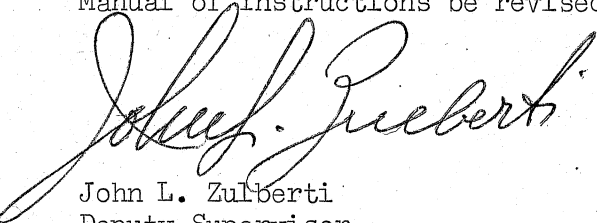
Place: Santa Maria

I am attaching the work sheet for the information requested in memorandum dated February 18, 1982.

In answer to Item 3 of the memorandum, only produced water has ever been injected into any aquifer in District 3.

Please note that our project approvals have always been related to drinking water of 50 grains per gallon of NaCl or better. It appears from the questions that EPA calls for no degradation of brackish water with less than 10,000 ppm total dissolved salts, whatever they are.

If it is intended that we follow the above criterion, I suggest that the Manual of Instructions be revised to so specify.



John L. Zurberti
Deputy Supervisor

JLZ:dv
Attachment

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Guadalupe	Knoxville (Cretaceous or older) <i>TDS 30,500 mg/l</i>	Extends throughout the field	-4,100	750	This formation is basement and is of regional extent.
Lompoc	Lospe (Miocene) <i>TDS 119,000</i> <i>(Getty-Hobbs 23x)</i> <i>Orcutt field</i>	Extends throughout the field	-2,700	150	This formation is just above basement; might be of regional extent.
	Knoxville (Cretaceous or older) <i>TDS 30,500 mg/l</i>	Extends throughout the field	-1,500	250	This formation is basement and is of regional extent.
Russell Ranch	Branch Canyon (Miocene) <i>TDS 13,000 mg/l</i>	Extends over the southern 2/3 of the field	+ 100	400	
San Ardo	Santa Margarita (Miocene) <i>TDS 3709 mg/l</i> <i>TDS INJEC. WATER 5575 mg/l</i> <i>date started Nov. 1966 No.</i>	Extends throughout the field	- 900	100	There appears to be a permeability barrier between north and south portions of field
	Monterey (Miocene) "D" sand <i>TDS 4663 mg/l</i> <i>TDS INJ. water 5575 mg/l</i> <i>date started July 1959 No.</i>	Extends throughout the field	-1,200	30	
	Monterey (Miocene) "E" sand <i>TDS 6364 mg/l</i> <i>TDS INJ. water 5575 mg/l</i> <i>date started March 1968 No.</i>	Extends throughout the field	-1,300	100	
Santa Maria Valley	Lospe-Franciscan (Miocene)-(Cretaceous or older) <i>TDS 119,000</i> <i>(Getty-Hobbs 23x)</i> <i>Orcutt field</i>	T. 10N., R. 33W., S.B.BM, Sections 19, 20, 21, 28, 29, 30, 32 & 33	-1,800	800	These formations are basement and are of regional extent
Monroe Swell	Santa Margarita (Miocene) <i>NaCl 3660 mg/l</i> <i>TDS INJ. water 9648 mg/l</i> <i>date started 1981 NaCl 12440 No.</i>	Extends throughout the field	- 800	150	
Point Conception	Camino Cielo (Eocene) <i>TDS 26,246</i>	Extends throughout the field	-4,500	450	Formerly Matilija
Guadalupe	Franciscan (Cretaceous or older) <i>TDS 30,500</i>	Extends throughout the field	-5,700	1,000	This formation is basement and is of regional extent.

Memorandum

RECEIVED
DIVISION OF OIL & GAS
SACRAMENTO

To : R. Reid

JUN 18 1 13 PM '82

Date : June 17, 1982

Subject: UIC Aquifer Exemptions

From : Department of Conservation—Division of Oil and Gas
Woodland

The following data is being forwarded in response to M. G. Mefferd's memo dated May 14, 1982.

Bunker Gas

Data requested has not been received from Amerada Hess Corp. It will be forwarded when available.

River Break Gas

Gulf Oil Corp., the operator of the project, intends to abandon the water disposal well. A Notice to Abandon was received May 24, 1982.

Sutter Buttes Gas

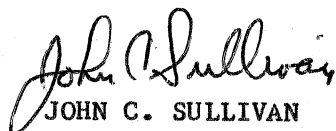
The Kione fm. is a major producing formation in the northern Sacramento Valley and produces gas in nearby fields. Information provided by the operator (Santa Fe Minerals (Calif.), Inc.) of the water disposal project is attached.

Union Island Gas

A recently received water analysis of the fluid in the aquifer prior to the start of injection indicates a TDS of 10,106 mg/l. Information provided by the operator (Union Oil Co. of Calif.) of the water disposal project is attached.

Wild Goose Gas

Data requested has not been received from Exxon Corp. It will be forwarded when available.


JOHN C. SULLIVAN
Deputy Supervisor

KPH:kw

Attachments (2)

Memorandum

RECEIVED
DIVISION OF OIL & GAS
SACRAMENTO

To : R. Reid

JUN 18 1 12 PM '82

Date : June 17, 1982

Subject: UIC Aquifer Exemptions

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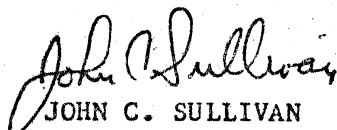
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JOHN C. SULLIVAN
Deputy Supervisor

KPH:kw

Attachments (2)

182 MAY 28 AM 9 43

DIVISION OF OIL AND GAS
RECEIVED

JUN 1 1982

WOODLAND, CALIFORNIA

DIVISION OF OIL AND GAS
RECEIVED May 28, 1982

JUN 1 1982

WOODLAND, CALIFORNIA

Mr. John C. Sullivan
Deputy Supervisor
Division of Oil & Gas
117 West Main St.
Suite 11
Woodland, CA 95695

Water Disposal Well
B.C. 2 - #57
Sutter Buttes Gas Field

Dear Mr. Sullivan,

In reply to your letter of May 21, 1982, requesting information which qualify an aquifer for exemption. Due to the very short time limit involved I will attempt to provide as much data as immediately available.

In Reply to Item I of Attachment B:

The Kione zone is not currently serving as a source of drinking water. I have attached as attachments No. 1 and No. 2 geochemical Analysis of produced Kione water from Santa Fe operated wells in Sec 6, T15N, R2E. I can tell you that you cannot drink Kione water produced in the SBGF.

During the conversion of well #57 we perforated the Kione at 3,580' to 3,570' and swabbed the zone to recover formation water prior to injection, see DOG form 103 dated April 8, 1982. A sample of this water has been sent to Hornkohl Laboratories for Geochemical Analysis with instruction for a copy of the results to be sent directly to you, we also requested a TDS analysis.

In Reply to Item IV of Attachment B:

A: See above declaration. I have included analysis of our Domestic Water well water as Attachment No. 3, the well is 200' deep, will pump at 200 GPM, and while suitable for industrial use and livestock tastes so bad we buy our drinking water in town. Our water well is used during the summer for livestock and our neighbors garden. I have included analysis of some spring water from one of best springs in the area, never has completely dried up regardless of drought conditions as attachment No. 4. This spring water tastes horrible and sheep and wildlife are all that use the spring.

B: See forthcoming analysis of Kione water.

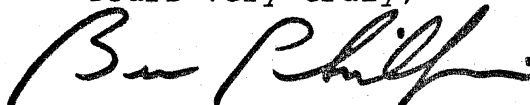
C: Based on pressure of 1,567 psi at a depth of 3,575' it is assumed the Kione Zone in Well #57 will surface water and possibly flow , no idea of any rates.

D: Top perforation of well #57 injection zone is at 3,077'. The deepest domestic well I know of is an orchard irrigation well located 2,500'± Southeast, this well was projected to drill to 500'±; however, they found so much suitable water at 350'± they quit drilling. DWR might know of deeper irrigation wells, I don't know of anybody that could afford to lift irrigation water 1,000'.

E: Location of well #57 is 1.228'N and 3,864'W of the SE Corner of Sec 5, T15N, R1E, M.D. B&M.

1. Nearest "Town" is the community of Meridian which is 2.6 Miles Southwest of #57.
2. Surface owners are James and Clareen Tarke, 3,450 West Butte Road, Sutter, CA, 95982.
3. All domestic water from relatively shallow wells (50' to 200'), irrigation and livestock water from wells and Butte Creek (part of Sutter Bypass System), all wells less than 1,000' deep. A few man-made ponds for retaining runoff in the Buttes, usually dry by mid-summer. Ownership of Butte Creek water in litigation for past 5-6 years in Federal Court.
4. None in this location.

Yours very truly,



Ben F. Phillips, Jr.

BFP/lc

Enclosures

HORNKOHL LABORATORIES, Inc.

CHEMICAL AND TESTING ENGINEERS

714 TRUXTON AVENUE

BAKERSFIELD, CALIFORNIA 93302

Laboratory No. 204549 August 17, 1970 Marked Well #64, Produced Water,
 Sample Water 8-4-70.
 Received August 8, 1970 Purchase Order #12636
 Submitted by Santa Fe Minerals, Inc.
 A Subsidiary of Santa Fe International Corporation
 14367 Pass Road
 Live Oak, California 95953
 Attn: BEN Phillips

PALMER HYDROLOGY ANALYSIS

<u>Constituents:</u>	<u>Parts per Million</u>	<u>Grains per Gallon</u>	<u>Reacting Values</u>	<u>Reacting Values Per Cent</u>
Carbonates, CO ₃	0.0	0.00	0.00	0.00
Bicarbonates, HCO ₃	762.5	44.59	12.50	8.41
Chlorides, Cl	2184.0	127.72	61.60	41.43
Sulfates, SO ₄	11.5	0.67	0.24	0.16
Sulfides, S	0.0	0.00	0.00	0.00
Calcium, Ca	19.6	1.15	0.98	0.66
Magnesium, Mg	15.1	0.88	1.24	0.83
Sodium, Na	1659.0	97.02	72.12	48.51
Totals:	4651.7	272.03	148.68	100.00
Boron, B	24.89	1.46		
Hardness as CaCO ₃	111.0	6.49		
Salt as NaCl	--	210.58		
pH-Value @ 25°C.	7.8			
Primary Salinity	--	83.18		
Secondary Salinity	--	0.00		
Total Salinity	--	83.18	83.18	
Primary Alkalinity	--	13.84		
Secondary Alkalinity	--	2.98		
Total Alkalinity	--	16.82	16.82	
			100.00	
Per Cent Sulfates in Sulfates plus Chlorides		--	0.384	
Carbonate-Chloride Ratio		--	0.000	
Carbonate-Sulfate Ratio		--	0.000	
Alkali-Alkaline Earth Ratio		--	32.557	
Resistivity, Ohm Meters @ 25°C.		--	1.60	

Respectfully submitted,
 HORNKOHL LABORATORIES, INC.

E. R. Starbuck, Jr.
 E. R. Starbuck, Jr.,
 Assistant Chief Chemist

ap

HORNKOHL LABORATORIES, Inc.

CHEMICAL AND TESTING ENGINEERS

714 TRUXTON AVENUE
BAKERSFIELD, CALIFORNIA

November 4, 1964

Laboratory No. 158,782

Marked 10/20/64 - Well #70 DST #2,
WED #1 2495 - 2500'

Sample Water

Received November 2, 1964

Submitted by Santa Fe Drilling Company
Route 2, Box 689
Live Oak, California

PALMER HYDROLOGY ANALYSIS

Constituents		Parts per Million	Grains per Gallon	Reacting V Values	Reacting Values Per Cent
Carbonates	(CO ₃)	180.0	10.53	6.00	2.82
Bicarbonates	(HCO ₃)	1128.5	65.99	18.50	8.69
Chlorides	(Cl)	2900.6	169.63	81.80	38.41
Sulphates	(SO ₄)	9.1	0.53	0.19	0.09
Sulphides	(S)	0.0	0.00	0.00	0.00
Calcium	(Ca)	75.2	4.40	3.76	1.77
Magnesium	(Mg)	51.7	3.02	4.24	1.99
Sodium	(Na)	2264.3	132.42	98.49	46.23
TOTALS		<u>6609.4</u>	<u>386.52</u>	<u>212.98</u>	<u>100.0</u>

Boron 55.55 3.25
Hardness as CaCO₃ 400.00 23.39 8.00
Salt as NaCl 279.63

pH 8.0

Primary Salinity 77.00
Secondary Salinity 0.00
Total Salinity 77.00

Primary Alkalinity 15.46
Secondary Alkalinity 7.54
Total Alkalinity 23.00
100.00

% Sulphates in Sulphates / Chlorides -- 0.234
Carbonate - Chloride Ratio -- 0.073
Carbonate - Sulphate Ratio -- 31.333
Alkali - Alkaline Earth Ratio -- 12.295

Resistivity @ 25°C is 1.13 ohm meters

Respectfully submitted,
HORNKOHL LABORATORIES, INC.,

Frank Hornkohl
Technical Director

HORNKOHL LABORATORIES, Inc.

CHEMICAL AND TESTING ENGINEERS

714 TRUXTON AVENUE
BAKERSFIELD, CALIFORNIA 93302

August 17, 1970

Laboratory No. 204547

Marked Domestic Water Well, Sec. 32,
T16N, R1E, M.O.B.+M, 8-4-70

Sample Water

Purchase Order #12636

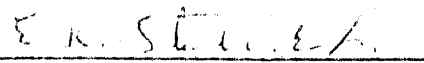
Received August 8, 1970

Submitted by Santa Fe Minerals, Inc.
A Subsidiary of Santa Fe International Corporation
14367 Pass Road
Live Oak, California 95953
Attn: Ben Phillips

* * * * *

PALMER HYDROLOGY ANALYSIS

<u>Constituents:</u>		<u>Parts per Million</u>	<u>Grains per Gallon</u>	<u>Reacting Values</u>	<u>Reacting Values per Cent</u>
Carbonates, CO ₃	---	0.0	0.00	0.00	0.00
Bicarbonates, HCO ₃	---	211.7	12.38	3.47	40.63
Chlorides, Cl	---	19.9	1.16	0.56	6.56
Sulfates, SO ₄	---	11.5	0.67	0.24	2.81
Sulfides, S	---	0.0	0.00	0.00	0.00
Calcium, Ca	---	36.4	2.13	1.82	21.31
Magnesium, Mg	---	16.3	0.95	1.34	15.69
Sodium, Na	---	25.5	1.49	1.11	13.00
Totals:	---	321.3	18.78	8.54	100.00
Boron, B	---	0.05	0.00		
Hardness As CaCO ₃	---	158.0	9.24		
Salt as NaCl	---	--	1.91		
pH-Value @ 25°C.	7.3				
Primary Salinity	--	18.74			
Secondary Salinity	--	0.00			
Total Salinity	--	18.74	--	18.74	
Primary Alkalinity	--	7.26			
Secondary Alkalinity	--	74.00			
Total Alkalinity	--	81.26	--	81.26	
				100.00	
Per Cent Sulfates in Sulfates plus Chlorides	--				29.989
Carbonate-Chloride Ratio	--				0.000
Carbonate-Sulfate Ratio	--				0.000
Alkaline-Alkaline Earth Ratio	--				0.351
Resistivity, Ohm Meters @ 25°C.	--				24.50

Respectfully submitted,
HORNKOHL LABORATORIES, INC.

 E. F. Starbuck, Jr.,
 Assistant Chief Chemist

HORNBKOHLE LABORATORIES, Inc.

CHEMICAL AND TESTING ENGINEERS

714 TRUXTON AVENUE
BAKERSFIELD, CALIFORNIA 93302

August 17, 1970

Laboratory No. 204548

Marked Spring Water, Sec. 34,
T16N, R1E, M.D.B+M., 8-4-70

Sample Water

Purchase Order #12636

Received August 8, 1970

Submitted by Santa Fe Minerals, Inc.
A Subsidiary of Santa Fe International Corporation
14367 Pass Road
Live Oak, California 95953
Attn: Ben Phillips

PALMER HYDROLOGY ANALYSIS

Constituents:		Parts per Million	Grains per Gallon	Reacting Values	Reacting Values Per Cent
Carbonates, CO ₃	---	18.0	1.05	0.60	8.24
Bicarbonates, HCO ₃	---	153.7	8.99	2.52	34.62
Chlorides, Cl	---	8.5	0.50	0.24	3.30
Sulfates, SO ₄	---	13.4	0.78	0.28	3.84
Sulfides, S	---	0.0	0.00	0.00	0.00
Calcium, Ca	---	29.6	1.73	1.48	20.33
Magnesium, Mg	---	16.1	0.94	1.32	18.13
Sodium, Na	---	19.3	1.13	0.84	11.54
Totals:	---	258.6	15.12	7.28	100.00
Boron, B	---	0.10	0.01		
Hardness as CaCO ₃	---	140.0	8.19		
Salt as NaCl	---	--	0.82		
pH-Value @ 25°C.	8.5				
Primary Salinity	---	14.28			
Secondary Salinity	---	0.00			
Total Salinity	---	14.28	--	14.28	
Primary Alkalinity	---	8.80			
Secondary Alkalinity	---	76.92			
Total Alkalinity	---	85.72	--	85.72	
				100.00	

Per Cent Sulfates in Sulfates plus Chlorides	--	53.781
Carbonate-Chloride Ratio	--	2.497
Carbonate-Sulfate Ratio	--	2.146
Alkali-Alkaline Earth Ratio	--	0.300
Resistivity, Ohm Meters @ 25°C.	--	2.55

Respectfully submitted,
HORNBKOHLE LABORATORIES, INC.

E. R. Starbuck, Jr.
E. R. Starbuck, Jr.,
Assistant Chief Chemist

Union Oil Company of California
P.O. Box 1074
Coalinga, CA 93210

DIVISION OF OIL AND GAS
RECEIVED

MAY 28 1982

WOODLAND, CALIFORNIA



May 25, 1982

RE: Water Disposal Well "Galli" #1
Union Island Gas Field

Mr. John C. Sullivan, Deputy Supervisor
Division of Oil and Gas
117 W. Main Street, Suite No. 11
Woodland, California 95695

Dear Mr. Sullivan:

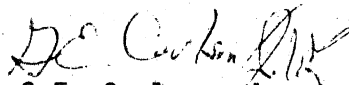
In response to your letter of May 21, 1982, we are supplying the information, as requested, for exemption of our "Galli" #1 disposal well from the provisions of the Underground Injection Control program.

The "Galli" #1 well disposes of produced water (from the Union Island Gas Field) into the Mokelumne River formation (5310-5720'). The well is located approximately 6 miles north of the town of Tracy and 11 miles southwest of Stockton on property owned by Galli Farms (L. Galli). The Mokelumne formation contains a brackish water (10,106 mg/l TDS) that is not suitable for drinking and is therefore not used as a source of drinking water (according to the DWR). This formation lacks any unusual geologic features (geology was supplied with our letter of May 19, 1977 when the well was converted for disposal.)

Drinking water wells in the area of the Union Island Gas Field are between 1000' and 1500' deep (according to the DWR), therefore, our injection interval is in excess of twice their depth. These wells yield water at rates as high as 2000-3000 gal/min. (according to the DWR). Delta and river water serve as alternate sources of water in this area.

Attached is a copy of the analysis of the Mokelumne formation water.

Very truly yours,


G.E. Carlson, Agent

JWL:jmm

Attachment

12300
NELSON LABORATORIES
AGRICULTURAL CHEMISTS AND CONSULTANTS
1145 WEST FREMONT STREET
STOCKTON, CALIF. 95203

W.F.

U.T. Files

July 28, 1977
DIVISION OF OIL AND GAS
RECEIVED

to Union Oil
P. O. Box 547
Isleton, California

MAY 28 1977
WOODLAND, CALIFORNIA

THE FOLLOWING ARE THE RESULTS OF ANALYSIS OF A SAMPLE OR SAMPLES AS RECEIVED FROM YOU BY THIS LABORATORY:

NAME OF MATERIAL Water Samples *Formation Water* RECEIVED 7-21-77

*From Galli #1
McClumme Sand*

Carbonate (CO ₃)	ppm	None
Bicarbonate (HCO ₃)	ppm	305
Chloride (Cl)	ppm	5920
Sulfate (SO ₄)	ppm	9
Nitrate (NO ₃)	ppm	< 1
Calcium (Ca)	ppm	196
Magnesium (Mg)	ppm	106
Sodium (Na)	ppm	3570
Percent Sodium (%)		89
Total Dissolved Salts	ppm	10106
Electrical Conductivity (mmhos/cm)		21.4
		7.6

BILL G. SPRADLIN
AUG 2 1977

A.E. KODDURA
AUG 24 1977

This sample is very unsatisfactory for irrigation purposes, primarily due to the extremely high chloride, sodium and total salt levels.

1000 = 1000 mg/l
100 = 100 mg/l
10 = 10 mg/l

NELSON LABORATORIES

BY *[Signature]*

Memorandum

To : Robert A. Reid, E.P.A. Coordinator

Date : May 26, 1982

RECEIVED
DIVISION OF OIL AND GAS
SACRAMENTO

MAY 29 1 26 PM '82

Subject: Exemption Criteria

From : Department of Conservation—
Division of Oil and Gas

Place: COALINGA

COALINGA FIELD

Santa Margarita Formation (Class III criteria)

- A. This aquifer is not a source of drinking water.
- B. There are no water wells listed by DWR.
- C. Location
 - 1. Underlies the city of Coalinga.
 - 2. Too complex to list or research.
 - 3. City water supplied by California Aqueduct system.
 - 4. No unusual geology.
- D. 8244 ppm TDS.
- E. No wells available to test.

Etchegoin-Jacalitos Formation (Class II criteria)

- A. This aquifer is not a source of drinking water.
- B. This aquifer is known to be hydrocarbon bearing at commercial levels.
- C. This formation has been approved for surface disposal by the Water Quality Control Board.

GUIJARRAL HILLS FIELD

Etchegoin-Jacalitos (Class III criteria)

- A. This aquifer is not a source of drinking water.
- B. There are no water wells listed by DWR.
- C. Location
 - 1. 4 miles to Huron and 6 miles to Coalinga.
 - 2. Owned predominately by Chevron U.S.A. Inc.
 - 3. Irrigation water obtained from California Aqueduct system.
 - 4. No unusual geology.
- D. 9400 ppm TDS.
- E. No wells available to test.

HELM FIELD

Tulare-Kern River (Class III criteria)

- A. This aquifer is not a source of drinking water.
- B. DWR lists 18 irrigation wells the deepest of which is 1020 feet deep. The top of the shallowest injection well interval is 1910 feet in one well with the rest all being below 2000 feet.
- C. Location
 - 1. 1 mile to Lanare, 2 miles to Helm and Burrell and 4 miles to Riverdale.
 - 2. Too complex to research or list.
 - 3. All water is supplied from wells.

(continued)

Exemption Criteria

Page Two

- 4. No unusual geology.
- D. 5100 to 23,900 ppm TDS dependent on depth.
- E. No wells available to test.

RIVERDALE FIELD

Pliocene Formation (Class III criteria)

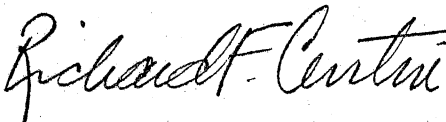
- A. This aquifer is not a source of drinking water.
- B. DWR lists 10 irrigation wells the deepest of which is 555 feet with perforations to 455 feet. The top of the shallowest injection well interval is 1840 feet with most of them below 2000 feet.
- C. Location
 - 1. $1\frac{1}{2}$ miles from Lanare, 4 miles from Burrell and partially underlies the community of Riverdale.
 - 2. Too complex to research or list.
 - 3. All water is supplied from wells.
 - 4. No unusual geology.
- D. 4788 to 16,200 ppm TDS dependent on depth.
- E. No wells available to test.

TURK ANTICLINE

San Joaquin Formation (Class III criteria)

- A. This aquifer is not a source of drinking water.
- B. DWR lists 1 irrigation well with a depth of 1196 feet. Top of injection interval is 2970 feet.
- C. Location
 - 1. 4 miles from Cantua Creek and 10 miles from Five Points.
 - 2. Appears to be Estate of James MacDonald- inadequate time to research.
 - 3. Unknown- inadequate time to research.
 - 4. No unusual geology.
- D. 3700 to 4440 ppm TDS.
- E. No wells available to test.

The problem of ownership of the land is sheer numbers. Coalinga field would have 5,000 to 10,000 or more separate owners since the aquifer underlies the city and other fields would be in the 100's. Yield of wells is determined by pump tests and since there is no commercial market for salt water no one has ever made a test of these aquifers.

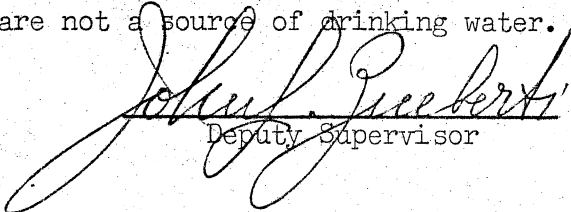


Richard F. Curtin
Deputy Supervisor

Data for Attachment B Criteria

III

- A. I hereby declare that the aquifers listed below are not a source of drinking water.


Deputy Supervisor

San Ardo Field

- B. T.23S, R.10E, Sec. 1, T.23S, R.11E, Secs. 6 and 7.

Department of Water Resources has no record of any well in the area of this project.

- C. 1. Santa Margarita, Monterey "D" and Monterey "E" project sands are six miles from Bradley and five miles from San Ardo.
2. The above aquifers are on private land.
3. Alternate water sources are the Salinas River and ground water in the terraces to the east.
4. There is no unusual geology.

- D. TDS concentration in Santa Margarita is 3700 ppm.

TDS concentration in Monterey "D" sand is 4600 ppm.

TDS concentration in Monterey "E" sand is 6400 ppm. As there is some minor amount of 10⁶ API oil in this sand, it should not have been listed as a non-hydrocarbon producing zone.

- E. Water yields were not determined.

Monroe Swell Field

- B. T.19S, R.7E, Sec. 19

Department of Water Resources has no record of any water well in the area of this project.

- C. 1. Santa Margarita project sand is five miles south of Greenfield and ten miles northwest of King City.
2. The above aquifer is on private land.
3. Alternate water sources are the Salinas River and ground water in the terraces to the west.
4. There is no unusual geology.

- D. TDS concentration in Santa Margarita sand was not determined; water samples taken at 1590' tested 3700 ppm NaCl.

Note: The part of the injection zone below 1555' may be Monterey.

- E. Water yields were not determined.

DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

146 SOUTH OJAI STREET, P. O. BOX 67

SANTA PAULA, CALIFORNIA 93060

(805) 525-2105



June 8, 1982

Ramona Oil FieldPico Fm.

Operator - Texaco Inc.

Operator Contact - Mr. Buchanan, Senior Prod. Engr. (213-385-0515)

Fresh water wells in vicinity - none

FW Source for Operations - FW well 1/2 mile north, drilled by operator.

Ownership of land - Private

Oat Mountain FieldUndifferentiated Marine

Operator - Union Oil Co. of Calif.

Operator Contacts - David Salzman, Prod. Engr. (805-525-6672)
Ed Hall, Geologist, (805-656-7600, Ext. 229)

Fresh water wells in vicinity - none

Source of FW - piped in from valley

Ownership of land - Private and Federal

South Tapo Canyon FieldPico Fm.

Operator - Union Oil Co. of Calif.

Fresh water wells in vicinity - none

Source of FW - piped in

Ownership of land - Private

Simi FieldSespe Fm.

Operator - Union Oil Co. of Calif.

Fresh water wells in vicinity - none

Wells drilled for FW by operator, ab'd. due to poor quality and low volumes.

Ownership of land - Private

Fresh Water

Ramona Field	4N-18W	Sec's. 12 & 13
	4N-17W	Sec's. 7, 8, 18, & 17
Oat Mountain	3N-17W	Sec. 24
	3N-16W	Sec's. 19 & 20
Simi	3N-17W	Sec's. 29, 30, 31, & 32
	3N-18W	Sec's. 31, 32, 33, 34, 35, & 36
	2N-18W	Sec. 6
South Tapo Canyon	3N-17W	Sec's. 7 & 8
	3N-18W	Sec's. 12 & 13

Examination of water well records and surface water quality records fails to point out any water wells within the administrative field boundaries of the fields in question.

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5-18-82 by R.L.H.

District 2 Class IV Injection Zone

FIELD NAME	S. THAROCYN PICO	1900 ppm NaCl	600 ppm NaCl	3,903,000	1,148	not a Source	N/A	N/A	N/A	RECEIVED 02/13/2018	~ 4mi Private In	Piped	None	?	None	ECONOMIC ANALYSIS	BPM
FORMATION & ZONE	Union Oil																
TDS of ZONE																	
TDS of Injected WTR Prior to Injection																	
VOLUME INJECTED																	
DATE INJECTION STARTED																	
Declaration aquifer is not a current source of drinking water																	
TDS Level in formation fluids																	
YIELD of WTR																	
DEPTH (EX DEEPEST WELL ACCORDING TO DWR)																	
LOCATION																	
Surface distance to existing forms																	
Ownership of Land																	
Alternative WTR Sources																	
Unusual Geology																	

5-18-82 by P.L.H.